

WHAT IS CLAIMED IS:

1. A nuclease resistant compound that hybridizes with RNA or DNA, comprising a plurality of covalently-bound nucleosides that individually include a ribose or deoxyribose
5 sugar portion and a base portion, wherein:

said nucleosides are joined together by internucleoside linkages such that the base portion of said nucleosides form a mixed base sequence that is complementary to a RNA base sequence or to a DNA base sequence;

10 at least one of said nucleosides includes a modified ribofuranosyl moiety bearing a 2'-alkoxy, 2'-aminoalkoxy or 2'-imidazolylalkoxy substituent;

provided that said modified ribofuranosyl moiety is not a 2'-methoxy ribofuranosyl moiety when said
15 internucleoside linkages are phosphorothioate linkages; and

further provided that said modified ribofuranosyl moiety is not a 2'-methoxy, 2'-ethoxy or 2'-propoxy ribofuranosyl moiety when said internucleoside linkages are phosphodiester linkages.

20 2. A compound of claim 1 wherein said 2'-alkoxy substituent is C₁-C₂₀ alkoxy.

3. A compound of claim 1 wherein said 2'-alkoxy substituent is C₁-C₁₀ alkoxy.

4. A compound of claim 1 wherein said 2'-
25 aminoalkoxy is 2'-O-(aminoprop-3-yl) or 2'-O-(aminobut-4-yl).

5. A compound of claim 1 wherein said 2'-imidazolylalkoxy is 2'-O-[(imidazol-1-yl)prop-3-yl] or 2'-O-[(imidazol-1-yl)but-4-yl].

6. The compound of claim 1 having 5 to 50
30 nucleoside linked nucleosides.

7. The compound of claim 1 wherein at least two of said nucleosides are covalently bound through phosphorothioate, methyl phosphonate, or phosphate alkylate internucleoside linkages.